REMARKS

Claims 1-12, 14-24, and 26-36 are pending. Claims 1 and 15 have been amended. Claims 13 and 25 have been cancelled. New claims 27-36 have been added.

Claim 15 has been amended to correct a typographical error. The applicants respectfully submit that this amendment in no way change the scope of coverage of claims 15-24.

The specification has been amended as illustrated above and in the Appendix to address the Examiner's objections to the specification. Additionally, the specification has been amended as illustrated above and in the Appendix to address the Examiner's objections to the drawings. No new matter has been added.

Rejection of Claims under 35 U.S.C. § 101 & §112

Claims 1-12 and 14 stand rejected under 35 U.S.C. § 101. Claims 1-12, 14, and 25 stand rejected under U.S.C. § 112, second paragraph. Claim 1 has been amended to address these rejections. Claim 25 has been cancelled.

Rejection of Claims under 35 U.S.C. § 103

Claims 1-26 stand rejected under 35 U.S.C. § 103 as being unpatentable over Apte et al., U.S. Patent No. 5,970,464 (Apte) in view of Kennedy, U.S. Patent No. 5,787,453. The applicants respectfully traverse these rejections.

Apte and Kennedy taken alone or in combination neither teach nor suggest a product rate calculation system including:

> a database interface operable to request and receive product rate information from a database, the product rate information including at least one product rate expression;
>
> a product rate information cache storing product rate information;
>
> an expression evaluation routine operable to parse a product rate expression stored in the product rate information cache into at least one token, and operable to evaluate the at least one token to determine a product rate; and
>
> a client interface operable to provide the product rate to a client application running on a computer system,

as required by independent claim 1, and generally required by independent claims 15, 26, and 27.

Regarding the claimed "product rate expression," the Examiner refers to column 4, lines 1-8 of Apte which state:

> An example of a rule extracted by the data mining process might be "If `male driver` and `age less than 25` and `car type is 2-door sports sedan`, Then `estimated quarterly pure premium=$700` with `error estimate=0.2` and `confidence interval=0.008`." Note that the rule set extracted by the data mining run will potentially have many such rules, perhaps in the hundreds.

Thus, it appears that the Examiner is arguing that Apte's rules extracted by the data mining process teach the claimed "product rate expression." The applicants respectfully disagree. Column 1, lines 30-32 of Apte describe the concept of a pure premium: "the premium at which their expected claims payout equals premium charged." Thus, a pure premium is not in fact a product rate, but rather a number based on claim payouts and actual premiums charged. Moreover, the illustrated rule extracted by the data mining process is not a product rate expression, that is an expression that when evaluated yields a product rate, but rather a conclusion based on data analysis that under certain conditions, the pure premium is some particular value.

Regarding the claimed "product rate information cache storing product rate information," the Examiner refers to column 3, lines 6-19 of Apte which state:

> The data warehouse 101 contains data derived from various data bases. There are a plurality of disparate data sources, generally indicated by reference numeral 103. These include internal data and external data. Internal data would include, for example, company transactional data such as policies and claims, while the external data would include demographic and psychographic data. This data is extracted from the several disparate data sources and converted and otherwise formatted into a desired format at 104 prior to storing in a common data warehouse 101. For example, an insurance company's historical data on policies and claims is organized for a particular product (e.g., automobile insurance) by state. Data warehouse 101 can be a disk subsystem of the server 10.

Thus, while Apte does teach the use of a data warehouse 101, the reference does not teach or suggest the use of a product rate information *cache* that is either part of the database or separate from the database. Moreover, it appears from the Examiner's

arguments regarding the claimed database interface that it is the Examiner's position that the database is taught by data warehouse **101**.

Regarding the claimed "an expression evaluation routine" the Examiner states "an expression evaluation routine operable to evaluate a product rate expression stored in the product rate information cache (Apte, col. 8, lines 54-60, col. 6, lines 8-9, and col. 9, lines 29-31) to determine a product rate (Apte; col. 3, lines 63-65). Office Action of August 14, 2002, p. 7, no. c. The applicants respectfully disagree. The cited portions of Apte state respectively (in the order in which they are cited and including additional portions for context):

> The scenario analysis subsystem is a crucial piece in the UPA solution that ties in the data mining process to the business problems at hand. The idea here is to allow the user to determine the value of a P&C insurance product by specifying it to the system, and having the system provide critical business information about the product, segment by segment.

> In response to this call, the server process mines data to produce policy pure premium prediction rules in function block **511**. This is done by accessing data in data store **512** and meta-data store **503**. The resulting rule sets are stored in rule sets store **513**.

> The scenario analysis result will first report on the gross statistics on how the product rule set covered the database, and within this coverage, using the base model, will be a detailed segmentation report that breaks down the coverage into individual segments, listed by the segments' coverage, percentage coverage, severity estimate, frequency estimate, pure premium, loss ration, and other entries that may be of interest.

> The data mining engine extracts from the data a set of rules that utilize the most appropriate subset of the remaining fields in the data (known as the "explanatory" variables) in its antecedent. The consequence of such rules will typically be a prediction of a pure premium for the data points that satisfy the antecedent.

Thus, it appears that the Examiner is arguing that the claimed "expression evaluation routine" is taught by Apte's scenario analysis subsystem. However, Apte does not teach or suggest that the scenario analysis subsystem is operable to evaluate a rule extracted by the data mining process (i.e., that which the Examiner contends teaches the claimed product rate information and product rate expression) *to determine a product rate*.

Regarding the claimed "client interface operable to provide the product rate to a

client application running on a computer system," the Examiner refers to column 6, lines 12-13 of Apte which state: "The screen shown in FIG. 6 is displayed with the Rule Sets tab is selected. This screen lists all the rule sets that are created by data mining runs, as well as edited rule sets that may have been created by the user." Unfortunately, it is unclear from the Examiner's argument what in Apte she contends to teach the claimed client interface and the claimed client application. If it is the Examiner's position that the screen shown in Figure 6 of Apte illustrates an example of a client application running on a computer system, then it appears that the particular parts of the cited reference that the Examiner has relied upon have not been designated as nearly as practicable, and the pertinence of the reference has not been clearly explained, both as required by 37 C.F.R. § 1.104(c)(2). The Examiner has pointed out nothing in Apte teaching or suggesting the claimed client interface.

Accordingly, the applicants respectfully submit that independent claims 1, 15, 26, and 27 are allowable over Apte and Kennedy, taken alone or in combination. Claims 2-12 and 14 depend from claim 1 and are allowable for at least this reason. Claims 16-24 depend from claim 15 and are allowable for at least this reason. Claims 28-36depend from claim 27 and are allowable for at least this reason.

In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the examiner is requested to telephone the undersigned.

Respectfully submitted,

_M_ _AL_

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I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231, on February 14, 2003.

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Attorney for Applicant(s)   Date of Signature

    Serial No.: 09/521,005

Appendix: Version with Markings to Show Changes Made

In the Specification

The paragraph on page 6, lines 19-30 is changed as follows:

When presented with the need to calculate a product rate, for example a user of computer system **190** has requested a health insurance product rate, rating engine client **110** provides some of the information needed by rating engine server **120** (typically consumer information) to client interface **130** via communication pathway **115**. Communication pathway **115** can be a network connection, in the case where product server [110]**100** and rating engine server **120** are, or are executing on, separate computer systems. Alternately, communication pathway **115** can be a message passing scheme, implemented within application or operating system code itself, to exchange information between processes. Consumer information typically takes the form of one or more sets of name-value pairs that represent consumer, and possibly product, factors and their associated values that are useful in calculating a product rate.

The paragraph on page 7, line 29 through page 8, line 10 is changed as follows:

Rate information database **170** contains much of the information necessary to perform a rate calculation. This information is stored as database records, and includes: insurance rate formulae stored as logical and algebraic expressions, *n*-dimensional (*i.e.,* zero, one or more) tables of rating factors, miscellaneous numeric values; and any other information used to calculate insurance rates. When instructed to (for example, when first activated), database interface [120]**140** loads rate information from rate information database **170** into cache **160**. Cache **160** is typically implemented in high capacity, volatile memory (*e.g.,* program memory) with appropriate program code to support caching, so that rate information is readily available to rate evaluation routine **150**, thereby enhancing rating performance. However, other caching schemes can be implemented as is well known to those having ordinary skill in the art.

The paragraph on page 9, lines 1-7 is changed as follows:

A user begins the process by entering the product application through the first page of the product, 1-2-3 page **205** via a hyperlink **201** located on the home page of a

web server operating on product server **100**, or via a hyperlink **202** from another web site, such as a web site belonging to a business partner, portal, or search engine. The first page **205** of the product [205] typically explains the process to follow. The user begins the data entry process either by accessing an existing account on the system (**215**) or by creating a new account **(210)** and entering appropriate information about the user.

The paragraph on page 12, lines 16-31 is changed as follows:

The operations performed to evaluate tokens in a product rate expression depend upon the types of tokens. Thus, if one of the tokens to be evaluated is an insurance rate look-up table that is indexed based on consumer information, evaluating that token can require using supplied consumer information received in **330** to retrieve information from an insurance rate look-up table previously stored in the cache during step **320**. Thus, **360** indicates that the determination is made whether product rate information is needed from the cache. As previously noted, that product rate information can take a variety of forms, and may even be a sub-expression that requires parsing and evaluation itself. If product rate information is needed, the information is retrieved in **340** and the evaluation process proceeds forward. When no additional product rate information is needed to evaluate the current token or tokens, operation proceeds to **370** to determine if additional tokens remain in the product rate expression to be parsed and/or evaluated. If so, the process returns to **350**, and if not, evaluation of the product rate expression is complete. A product rate is returned to the rating engine client **(380)**, and operation of the rating engine server returns to **330** to await the next request.

In the Claims

The following claims have been substituted for the pending claims with the same number:

1   1. (Amended) A product rate calculation system comprising:

2   a processor;

3   computer readable medium, wherein the computer readable medium is at least one

4   of an electronic storage medium, a magnetic storage medium, an optical

5 storage medium, and a communications medium conveying signals

6 encoding instructions;

7 a database interface operable to request and receive product rate information from

8 a database, the product rate information including at least one product rate

9 expression;

10 a product rate information cache storing product rate information;

11 an expression evaluation routine operable to parse a product rate expression

12 stored in the product rate information cache into at least one token, and

13 operable to evaluate the at least one token to determine a product rate; and

14 a client interface operable to provide the product rate to a client application

15 running on a computer system, wherein at least one of the database

16 interface, the product rate information cache, the expression evaluation

17 routine and the client interface is encoded in the computer readable

18 medium as instructions executable on the processor.

1 15. (Amended) A method of calculating a product rate comprising:

2 loading product rate information including at least one product rate expression

3 from a database;

4 storing the product rate information in a cache;

5 receiving a request for a product rate from a client application running on a

6 computer system;

7 parsing the at least one product rate expression stored in the cache into at least

8 one token;

9 evaluating the at least one token to determine the product rate; and

10 transmitting the product rate to the client application running on the computer

11 system.

Serial No.: 09/521,005